

ANALYTICAL RESULTS

PERFORMED BY

Pace Analytical Gulf Coast 7979 Innovation Park Dr. Baton Rouge, LA 70820 (225) 769-4900

Report Date 12/01/2019

Report # 219113009

Project 112312 South 4 Group Fire

Deliver To

Shawn Wnek CTEH 5120 North Shore Drive North Little Rock, AR 72118 **Additional Recipients**

Labresults@cteh.com, CTEH Angie Perez, CTEH BJ Fogleman, CTEH Eric Allaby, CTEH Linda Easton, CTEH









Project ID: 112312 South 4 Group Fire Report Date: 12/01/2019

Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with Pace Gulf Coast's Standard Operating Procedures.

Common Abbreviations that may be Utilized in this Report

ND Indicates the result was Not Detected at the specified reporting limit

NO Indicates the sample did not ignite when preliminary test performed for EPA Method 1030

DO Indicates the result was Diluted Out

MI Indicates the result was subject to Matrix Interference
TNTC Indicates the result was Too Numerous To Count
SUBC Indicates the analysis was Sub-Contracted
FLD Indicates the analysis was performed in the Field

DL Detection Limit
LOD Limit of Detection
LOQ Limit of Quantitation

RE Re-analysis

CF HPLC or GC Confirmation

00:01 Reported as a time equivalent to 12:00 AM

Reporting Flags that may be Utilized in this Report

Jor I Indicates the result is between the MDL and LOQ

J DOD flag on analyte in the parent sample for MS/MSD outside acceptance criteria

U Indicates the compound was analyzed for but not detected B or V Indicates the analyte was detected in the associated Method Blank

B or V Indicates the analyte was detected in the associated Method Blank
Indicates a non-compliant QC Result (See Q Flag Application Report)

* Indicates a non-compliant or not applicable QC recovery or RPD – see narrative

E Organics - The result is estimated because it exceeded the instrument calibration range
Metals - % difference for the serial dilution is > 10%

Metals - % diference for the serial dilution is > 10%
 Reporting Limits adjusted to meet risk-based limit.

P RPD between primary and confirmation result is greater than 40

DL Diluted analysis - when appended to Client Sample ID

Sample receipt at Pace Gulf Coast is documented through the attached chain of custody. In accordance with NELAC, this report shall be reproduced only in full and with the written permission of Pace Gulf Coast. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with The NELAC Institute (TNI) Standard 2009 and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

Authorized Signature

Pace Gulf Coast Report 219113009



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Certifications

Certification	Certification Number
DOD ELAP	74960
Alabama	01955
Arkansas	88-0655
Colorado	01955
Delaware	01955
Florida	E87854
Georgia	01955
Hawaii	01955
Idaho	01955
Illinois	200048
Indiana	01955
Kansas	E-10354
Kentucky	95
Louisiana	01955
Maryland	01955
Massachusetts	01955
Michigan	01955
Mississippi	01955
Missouri	01955
Montana	N/A
Nebraska	01955
New Mexico	01955
North Carolina	618
North Dakota	R-195
Oklahoma	9403
South Carolina	73006001
South Dakota	01955
Tennessee	01955
Texas	T104704178
Vermont	01955
Virginia	460215
Washington	C929
USDA Soil Permit	P330-16-00234



Project ID: 112312 South 4 Group Fire Report Date: 12/01/2019

Case Narrative

Client: CTEH Report: 219113009

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the Report Sample Summary page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

MISCELLANEOUS

PFAS Abbreviations

6:2 FTS - 6:2 Fluorotelomer sulfonate

8:2 FTS - 8:2 Fluorotelomer sulfonate

FOSA - Perfluorooctane Sulfonamide

PFBA - Perfluorobutanoic acid

PFBS - Perfluorobutanesulfonic acid

PFDA - Perfluorodecanoic acid

PFDS - Perfluorodecane Sulfonate

PFDoA - Perfluorododecanoic acid

PFHpA - Perfluoroheptanoic acid

PFHpS - Perfluoro-1-heptanesulfonate

PFHxA - Perfluorohexanoic acid

PFHxS - Perfluorohexanesulfonic acid

PFNA - Perfluorononanoic acid

PFOA - Perfluorooctanoic acid

PFOS - Perfluorooctane Sulfonate

PFOS - Perfluorooctanesulfonic acid

PFPeA - Perfluoropentanoic acid

PFTeDA - Perfluorotetradecanoic acid

PFTrDA - Perfluorotridecanoic acid

PFUdA - Perfluoroundecanoic acid



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Sample Summary

LAB ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21911300901	PNTX1130X001A	Water	11/30/2019 08:30	11/30/2019 16:13
21911300902	PNTX1130X002A	Water	11/30/2019 09:45	11/30/2019 16:13
21911300903	PNTX1130X003A	Water	11/30/2019 10:45	11/30/2019 16:13
21911300904	PNTX1130X004A	Water	11/30/2019 08:45	11/30/2019 16:13
21911300905	PNTX1130X006A	Water	11/30/2019 09:45	11/30/2019 16:13



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Summary of Compounds Detected

DNITVAASOVO	04.4	Collect Date	11/30/2019 08:30		LAB ID	21911300901	
PNTX1130X0	ALO	Receive Date	11/30/2019 16:13		Matrix	Water	
EPA 537 Modifi	ed						
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4		anesulfonic acid		132	1.37	8.33	ng/L
1763-23-1 335-67-1	Perfluorooct Perfluorooct	ane Sulfonate anoic acid		865 16.6	1.42 1.50	8.33 8.33	ng/L ng/L
DNITVAAOOVO		Collect Date	11/30/2019 09:45		LAB ID	21911300902	
PNTX1130X0	UZA	Receive Date	11/30/2019 16:13		Matrix	Water	
EPA 537 Modifi	ed						
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4		canesulfonic acid		223	1.37	8.33	ng/L
1763-23-1 335-67-1	Perfluorooct Perfluorooct	ane Sulfonate anoic acid		472 18.4	1.42 1.50	8.33 8.33	ng/L ng/L
000 01 K	* *************************************			10	,,,,,	v.vv	· · · · · · · · · · · · · · · · · · ·
PNTX1130X0			11/30/2019 10:45		LAB ID	21911300903	
PNIATION	03A	Receive Date	11/30/2019 16:13		Matrix	Water	
EPA 537 Modifi	ed						
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4		anesulfonic acid		48.2	1.37	8.33	ng/L
1763-23-1 335-67-1	Perfluorooct Perfluorooct	ane Sulfonate anoic acid		165 9.70	1.42 1.50	8.33 8.33	ng/L ng/L
				*****	****	w.w.	,,9,,
DNITVAAOOVO	0.4.8	Collect Date	11/30/2019 08:45		LAB ID	21911300904	
PNTX1130X004A		Receive Date	11/30/2019 16:13		Matrix	Water	
EPA 537 Modifi	 ed						
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4		canesulfonic acid		51.1	1.37	8.33	ng/L
1763-23-1		ane Sulfonate		160	1.42	8.33	ng/L
335-67-1	Perfluorooct	anoic acid		11.7	1.50	8.33	ng/L



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Summary of Compounds Detected

PNTX1130X006A	Collect Date	11/30/2019 09:45	LAB ID	21911300905
PNIXII3UXUU6A	Receive Date	11/30/2019 16:13	Matrix	Water

EPA 537 Modified

CAS#	Parameter	Result	DL	LOQ	Units
355-46-4	Perfluorohexanesulfonic acid	48.3	1.37	8.33	ng/L
1763-23-1	Perfluorooctane Sulfonate	219	1.42	8.33	ng/L
335-67-1	Perfluorooctanoic acid	8.59	1.50	8.33	ng/L



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Sample Results

EPA 537 Modified

Prep Date 11/30/2019 17:45	Prep Batch 672394	Prep Method EPA 537 Modified	Dilution 1	Analysis Date 12/01/2019 01:58	By BMH	Analytical E	Batch
		EFA 337 Modified					11
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4	Perfluorohexane	sulfonic acid		132	1.37	8.33	ng/L
1763-23-1	Perfluorooctane	Sulfonate		865	1.42	8.33	ng/L
335-67-1	Perfluorooctano	ic acid		16.6	1.50	8.33	ng/L
CAS#	Surrogate		Conc. Spiked	Conc. Rec	Units %	6 Recovery	Rec Limits
355-46-4-EIS	M3PFHxS		83.30	84.9	ng/L	102	50 - 150
335-67-1-EIS	M8PFOA		83.30	73.8	ng/L	89	50 - 150
1763-23-1-EIS	M8PFOS		83.30	59.8	ng/L	72	50 - 150

PNTX1130X002A	Collect Date	11/30/2019 09:45	LAB ID	21911300902		
	PNIXIISUXUUZA	Receive Date	11/30/2019 16:13	Matrix	Water	

EPA 537 Modified

Prep Date 11/30/2019 17:45	Prep Batch 672394	Prep Method EPA 537 Modified	Dilution 1	Analysis Date 12/01/2019 02:09	Ву ВМН	Analytical B 672387	Batch
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4	Perfluorohexane	sulfonic acid		223	1.37	8.33	ng/L
1763-23-1	Perfluorooctane	Sulfonate		472	1.42	8.33	ng/L
335-67-1	Perfluorooctano	ic acid		18.4	1.50	8.33	ng/L
CAS#	Surrogate	C	onc. Spiked	Conc. Rec	Units %	Recovery	Rec Limits
355-46-4-EIS	M3PFHxS		83.30	84.8	ng/L	102	50 - 150
335-67-1-EIS	M8PFOA		83.30	74.4	ng/L	89	50 - 150
1763-23-1-EIS	M8PFOS		83.30	54	ng/L	65	50 - 150

DNITY4420Y002A	Collect Date	11/30/2019 10:45	LAB ID	21911300903
PNTX1130X003A	Receive Date	11/30/2019 16:13	Matrix	Water

EPA 537 Modified

Prep Date 11/30/2019 17:45	Prep Batch 672394	Prep Method EPA 537 Modified	Dilution 1	Analysis Date 12/01/2019 02:21	By BMH	Analytical Batch	
CAS#	Parameter	ZI / CO / Modified		Result	DL	LOQ	Units
355-46-4	Perfluorohexane	sulfonic acid		48.2	1.37	8.33	ng/L



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Sample Results

EPA 537 Modified (Continued)

Prep Date 11/30/2019 17:45	Prep Batch 672394	Prep Method EPA 537 Modified (Continued)	Dilution 1	Analys i 12/01/2	s Date 019 02:21	By BMH	Analytica 672387	ıl Batch
CAS#	Parameter		R	Result	DL		LOQ	Units
1763-23-1 335-67-1	Perfluoroocta Perfluoroocta	ane Sulfonate anoic acid		165 9.70	1.42 1.50		8.33 8.33	ng/L ng/L
CAS#	Surrogate	Conc. Spiked	l Conc	. Rec	Units	% Re	covery	Rec Limits
355-46-4-EIS 335-67-1-EIS 1763-23-1-EIS	M3PFHxS M8PFOA M8PFOS	83.30 83.30 83.30)	87.3 74.3 45.5	ng/L ng/L ng/L		105 89 55	50 - 150 50 - 150 50 - 150

PNTX1130X004A	Collect Date	11/30/2019 08:45	LAB ID	21911300904		
	PN1X1130X004A	Receive Date	11/30/2019 16:13	Matrix	Water	

EPA 537 Modified

Prep Date 11/30/2019 17:45	Prep Batch 672394	Prep Method EPA 537 Modified	Dilution 1	Analysis Date 12/01/2019 02:32	By BMH	Analytical Bate 672387	ch
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4	Perfluorohexane	sulfonic acid		51.1	1.37	8.33	ng/L
1763-23-1	Perfluorooctane	Sulfonate		160	1.42	8.33	ng/L
335-67-1	Perfluorooctano	ic acid		11.7	1.50	8.33	ng/L
CAS#	Surrogate	(Conc. Spiked	Conc. Rec	Units	% Recovery F	Rec Limits
355-46-4-EIS	M3PFHxS		83.30	80.9	ng/L	97	50 - 150
335-67-1-EIS	M8PFOA		83.30	66.6	ng/L	80	50 - 150
1763-23-1-EIS	M8PFOS		83.30	59.5	ng/L	71	50 - 150

PNTX1130X006A	Collect Date	11/30/2019 09:45	LAB ID	21911300905
PNIXII30X006A	Receive Date	11/30/2019 16:13	Matrix	Water

EPA 537 Modified

Prep Date 11/30/2019 17:45	Prep Batch 672394	Prep Method EPA 537 Modified	Dilution 1	Analysis Date 12/01/2019 02:43	By BMH	Analytical Batch 672387	
CAS#	Parameter			Result	DL	LOQ	Units
355-46-4 1763-23-1	Perfluorohexane Perfluorooctane	- Datit Dillio Grator		48.3 219	1.37 1.42	8.33 8.33	ng/L ng/L



Project ID: 112312 South 4 Group Fire **Report Date:** 12/01/2019

Sample Results

PNTX1130X006A Collect Date 11/30/2019 09:45 LAB ID 21911300905

Receive Date 11/30/2019 16:13 Matrix Water

EPA 537 Modified (Continued)

Prep Date 11/30/2019 17:45	Prep Batch 672394	•		Analysi	s Date 019 02:43	By BMH	Analytica 672387	al Batch
11/30/2019 17:45	012394	EPA 537 Modified (Continued)	I	12/01/2	J 19 UZ.43	DIVIT	012301	
CAS#	Parameter		R	esult	DL		LOQ	Units
335-67-1	Perfluorooct	Perfluorooctanoic acid		8.59 1.50			8.33	ng/L
CAS#	Surrogate	Conc. Spiked	Conc.	Rec	Units	% Re	covery	Rec Limits
355-46-4-EIS	M3PFHxS	83.30		78.5	ng/L		94	50 - 150
335-67-1-EIS	M8PFOA	83.30		76.6	ng/L		92	50 - 150
1763-23-1-EIS	M8PFOS	83.30		69.7	ng/L		84	50 - 150



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LC/MS QC Summary

Analytical Batch	analytical Batch Client ID			LCS672394			LCSD672394					
672387	LAB ID	1987418		1987419)			1987420)			l
Prep Batch	Sample Type	MB I		LCS				LCSD				l
672394	Prep Date	11/30/2019 17:	45	11/30/2019 17:45			11/30/2019 17:45				l	
Prep Method	Analysis Date 12/01/2019 01:24		12/01/2019 01:35			12/01/2019 01:47				l		
EPA 537 Modified	Matrix	Water	Water Water				Water					
EPA 537 Modified		Units Result	ng/L DL	Spike Added	Result	%R	Control Limits%R	Spike Added	Result	%R	RPD	RPD Limit
Perfluorohexanesulfonic acid	355-46-4	1.64U	1.64	73.0	74.9	103	70 - 130	73.0	70.0	96	7	30
Perfluorooctane Sulfonate	1763-23-1	1.70U	1.70	74.0	77.8	105	70 - 130	74.0			1	30
Perfluorooctanoic acid	335-67-1	1.80U	1.80	80.0	79.4	99	70 - 130	80.0	75.9	95	4	30
Surrogate												i I
M3PFHxS	355-46-4-EIS	111	111	100	107	107	50 - 150	100	109	109	NA	NA
M8PFOA	335-67-1-EIS	104	104	100	98.9	99	50 - 150	100	101	101	NA	NA
M8PFOS	1763-23-1-EIS	113	113	100	104	104	50 - 150	100	98.8	99	NA	NA

Client ID: 4527 - CTEH SDG: 219113009 PM: EPM Center for Toxicology and Environmental Health, L.L.C. SAMPLE CHAIN OF CUSTODY AND ANALYSIS REQUEST FORM Many ornics: \$120 North Share Drive Room, Little Rock, Arkenses 12116 CTEH Project Number: 11231 L Phone (901) 801-8509 Lat Name: Park Andjase Website: www.CTEH.com Fax: (501) 201-2561 STEPMENT INTO MATEON Addieses: CLESS PROJECT RECORDATION Deprese Digital College Character Property Foundation District Franciscop Sci. Prog State 3x CIER PROJECT INFORMATION Proj. Com. Post Heches, TX Property frame To a Locason North Live Nech (maj amati@ibit.com navang.com.com estanggicae.com Feathers, V. Clear Contact CS+N DOC # PHIX1130A Tal Alley Faces States versee 5120 Restriction to 20000 201-801-8000 Turnscound Time Lab Work Distor? Department of North Letter Beile, AM 77118 Cond Reson to fall colored out our X, Maximum 5 : 3 \$ 1600 10 hogiseeder booker book Charles 0 · No Preservative COMMERCE 3 × Softers Aced Freesew * Named in the * * Day Root 1 × Protections and 4 × Bodium Department 7 × protected from both 9 (896) 2 + 1886; Aug Quilverships. 5 * Section Hydroxida 8 o Ottor Matrix Codes: Company (see 11) Progest DO + Dodd Container Type: 408 × 4 surva Jas 4* 4* t issues and 50 × 664 St. × Switze GW + Grannon lati e puestian S. ESO Sequent, Forest een was 7 * Tape SE + Sediment * Level N RW + Notace Water 11. * 1 (20/20/00/20) POLY + poly parts. SCH × CHIM Sold SAMPLE INFORMATION ****** 500 Gw Additional Identification Service Colocies Chart Bongle Marks attach 70003 7,,, Compa form batan Code ownber (market) PNTX1100X001A 0330 8W PNTX1130X032A 11/30/2016 0945 PRINTERSONA 11/00/2019 PM1X1130X034A 0845 314 11/20/2019 PNTX1130X006A 11/30/2019 0445 899 11/30/2018 PM1X11301007A 11/9/22019 36) PWTX11301003A 10000000 PN TX II ÖD T DOU'N /exp Constraint a Special Artificial Regularization 4 8, 0.8, 2.4 C E54 77/36/19 225 Personation Harry wheel by AB COLORNO LOS Remotos Ower Time LAS LAG OF RANGE CHILDRAN, MITLAN TO LANGUAGE VOT CHANGES



SAMPLE RECEIVING CHECKLIST



SAMPLE DELIVERY GROUP 219113009		CHECKLIST	YES	NO				
Client PM ⊞M 4527 - CT⊞	Transport Method		Samples received with proper thermal preservation	~				
			Radioactivity is <1600 cpm? If no, record cpm value	~				
Profile Number Receiv 282246 Savage			COC relinquished and complete (including sample	V				
202240	Savage, Tiffany R		All containers received in good condition and with	•				
Line Item(s) Receiv		e(s)	All sample labels and containers received match the chain of custody?					
2 - 3.5x W - V, GRO, 8015, SV, PAH, TOC, O&G, PFAS	11/30/19		Preservative added to any containers?			V		
			If received, was headspace for VOC water contain	ers < 6mm?	V			
			Samples collected in containers provided by Pace	Ø				
COOLERS			DISCREPANCIES	LAB PRESERVATIONS				
Airbill Thermometer ID: E34 Temp °C 4.8 0.8 2.4		4.8 0.8	None	None				
NOTES								

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